Gateway

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The ARRL Packet-Radio Newsletter

ARIZONA JOINS WESTNET

Arizona is finally a part of WESTNET via a Gateway digipeater on 145.01 MHz, WB7BNI, on Union Mountain near Prescott, Arizona. WB7BNI also is a WA7MBL BBS connected to the Phoenix 145.11-MHz packet repeater via 450 MHz. Also available via WB7BNI are KE7CZ-1 digipeater (Mingus Mountain) KE7CZ, KR5S and N5EDH BBS (all 145.01/40-meter GateWays/BBSs). Several stations in the Phoenix area can connect to the northern Arizona WB7BNI digipeater for entry into WESTNET. Plans are in the works for future digipeaters in Phoenix and Tucson. A map of the Arizona LAN will be released in the next week or so and placed on HAM/LINK, major West Coast BBSs, or available by request by sending a message to SYSOP, on FIDO 114/15 of the FIDO Bulletin Board systems.

From WB7TPY

160 METER PACKET

The Gateway desk received the following report on 160-meter packet activity from Steve Hall, WM6P.

"WK6K, Jerry in Camarillo, CA and I have begun tests on 160-meter packet. The results thus far have been excellent. 100% error-free communications without retries at 300 bit/s. Signal levels over the path were 59+ without fading.

"Having worked HF packet for the last two years, I have been exploring all HF bands available, each having its own unique capabilities. A growing need has arisen for reliable linking over a single-hop 100 to 500-mile path. VHF covers the shorter paths if prime mountaintop locations are available. These, however, are often difficult to acquire. 80, 40 and 20 meters provides longer paths (500 miles +) during band openings. This leaves a linking distance covered well by 160 meters, with ground wave available 24 hours a day."

If you are interested in setting up a sked, please contact:

Steve Hall, WM6P
664 Bristol Ave.
Simi Valley, CA 93065

From WM6P

LEARNING FROM CELLULAR

The following was taken from The PTG Express

"In the Washington DC area we have successfully moved most of the local BBS traffic off of 145.01 MHz and onto 145.05 MHz by installing dual VHF radios on the W3IWI BBS. EASTNET traffic can now be forwarded on 145.01 MHz with a minimum of QRM from local users. Two digipeaters on 145.01 MHz assures that users throughout the metropolitan area have access to the BBS. A few other local BBSs, such as the C 64 WB4APR HF gateway share 145.05 and use it for local forwarding. As more and more users join the packet revolution, we are beginning to see local clubs with local interests using packet to augment their club activities. In this area, our local club (not packet) was planning to put up a BBS to serve its club members and also to serve the area as a local digipeater on 145.09 MHz.

"With the BBS and TNC at a members house at 40 feet for resting, it was soon apparent that all members could access the system either direct or using a near neighbor as a digipeater. Taking a lesson from cellular, we realized that the needs of the club could be met without raising the antenna to the 200-foot level and by keeping the antenna lower, we would see less QRM from other nearby areas using the same frequency. Certain key members agreed to leave their stations on for digipeating and extending the net to all members.

"This concept would work well for if regional packet coordinators would designate certain frequencies as local use only and allow no wide area digipeaters to be installed. Although no set rules would be established, a 25 watt power limit and 75 foot antenna height limit over average terrain might suffice. By reserving two or maybe three frequencies and a little bit of coordination, many local clubs could compatibly share the available frequencies and still have area coverage with minimum QRM.

"This cellular way of thinking is quite foreign to our experience as VHF repeater users, but is the key to the success of cellular technology. Look at your local cellular antennas and you will not see them on hills or ridges; the optimum location is in the center of a valley where the geography makes a well defined local cell. In any case, most antennas are on the order of 100 feet high. Another key to the success of cellular is power control; the transmitter power of all mobiles is under the control of the central computer to assure only the minimum power necessary is used.

"The purpose of this article is not to condemn wide-area digipeaters in any way since they are the key to packet-radio connectivity, but to encourage a cellular approach to the design of local area networks where relatively confined

areas of interest can be defined. The following frequency proposal summarizes these thoughts:

145.010 MHz Wide-area digipeaters, preferably located on metropolitan fringes to link between regions (to be replaced by 220 MHz).

145.030 MHz Simplex, local use or digipeaters as agreed locally.

145.050 MHz Wide-area digipeaters in the center of regional activity.

145.070 MHz Local use (cellular).

145.090 MHz Local use (cellular)."

By WB4APR

PACKET VOICE NET

On April 2, 1986 the POLI (Packet Of Long Island) 2-meter net became a reality. The purpose of the voice net is to hold technical discussions and enable those who are not active in packet to gain information more easily. The POLI net meets weekly on Wednesday evenings at 9 PM on the 146.805 repeater. All questions should be directed to net control.

From POLI Newsletter

ATTENTION ALL PACKET CLUBS

Gateway is currently compiling a list of all US packet-radio clubs to be listed in a future edition of the newsletter. All packet clubs are requested to submit the following information:

- Club Name
- Club address
- Meeting information
- Contact name (address and phone number)
- Annual dues

If your club is presently sending its newsletter to Gateway or has already sent club data, you are still requested to send along the information.

Please send all pertinent information to:

ARRL
225 Main St
Newington, CT 06111
Attn: Gateway Editor

You may also send the information electronically via any of the following services:

- CompuServe's HamNet Send to ID: 72747,3207
- Plink's Ham/Link Send to ID: ED*WA2FTC
- EIES DRNET Send to ID: ARRL

Ed.

HEATH TNC STATUS INDICATOR

A couple of months ago, the Heath company introduced a 'status indicator' for their version of the TAPR TNC 1. Though introduced with almost no fanfare, the unit is a very enhancement to the TNC 1.

The unit plugs into the expansion connector J1 on the back of the TNC and derives its power from the TNC. Since the Heath TNC is a TAPR 1 clone, the Status Indicator should work with the original TAPR board as well as with other clones.

The status indicator consists of 8 LEDs (2 green, 4 yellow and 2 red) along with a small audible alarm circuit all mounted in a small case that matches the TNC.

The audible alarm is the nicest feature of the status indicator. Whenever someone connects with you the alarm sounds for a short while to let you know you are connected. The alarm is loud enough to be heard a reasonable distance away allowing the operator to leave the TNC on and concentrate on thing other then the screen.

Two of the LEDs are used to indicate whether the TNC is in the COMMAND or CONVERSE mode. A green LED labeled CMD: is lit when the TNC is command mode and yellow LED indicates CONVERSE mode status. Another pair of LEDs indicates the connect status of the TNC. A red LED indicates Connect and a green LED indicates Disconnect.

Three other LEDs indicate CONNECT ATTEMPT DISCONNECT IN PROGRESS and BUFFER. The first two require no explanation. BUFFER indicates a packet is backed up in the TNC waiting to be sent. This indicator is extremely useful as it indicates when the TNC is delayed because of channel activity.

The final red LED labeled FRMR indicates that the TNC has received an invalid frame, and that a frame reject packet has been sent.

The status indicator has been in use here at AA8V for several months and has proved to be well worth the price of $24.95. The Heath stock number is HDA-4040-1. Shipping weight is 2 lbs.

From AA8V

PACKET ROUTE SERVER

Packet operators in central North Carolina can now receive network routing information by connecting to WA4APL in Charlotte, NC. The route server function provides a connecting station with a digipeater via lists to other packet stations in the area.

After connecting, simply send:

@<station_call>

For example:

@KK4L

would result in a list of digipeater paths to the BBS in Waxhaw, NC. Keep in mind that the routes are established from WA4APL and may not be optimal for your location.

At present there are over 140 stations in the directory from the southeast and the list is growing weekly. Via routes are limited to those stations requiring three or less digipeaters for a connection to avoid channel congestion on 145.01 MHz.

The routes are established by parsing Unnumbered Acknowledge (UA) frames and placing the result in a data base. The route server at WA4APL runs on an IBM PC and is in operation 24 hours a day.

For further information, you may send an sase to:

Charlie Price, WA4APL
6521 Creekstone Place
Charlotte, NC 28213

From WA4APL

PACKET AT BOSTON SCIENCE MUSEUM

"On the weekend of April 26 and 27, the Council of Eastern Massachusetts Amateur Radio Clubs (CEMARC) sponsored an exhibit of Amateur Radio at the Boston Science Museum. The exhibit was intended to maximize museum visitor participation in Amateur Radio in an effort to get more people, especially young people, interested in our hobby. As part of this effort, I had the pleasure to coordinate the packet-radio exhibit.

"The ten foot by ten foot area set aside for packet was organized around one operating position. The equipment used was a Commodore 64 and monitor, TAPR TNC 2, ICOM 02-AT, Alinco ELH-260D amplifier, 180 feet of coax and a quarter wave ground plane antenna 50 feet in the air. Accessory equipment included a 19-inch TV as an additional monitor, a NEC Spinwriter printer and an Echo GP speech synthesizer.

"The booth was arranged so that visitors could stand outside and observe the QSO in progress on the 19-inch TV screen as well as see the operator in action. This allowed the visitors an opportunity to watch without having to commit themselves by stepping into the booth. Watching a nine year old working the keyboard was often enough to overcome the 'cool' of a 14 year old visitor.

"Just below the screen was a large poster showing a home computer hooked to a TNC and a radio. We supplemented this diagram with a more thorough explanation to those who seemed the slightest bit curious. Printed technical information was also available.

"The general used was to allow people to converse over the KA1SM packet station with a ham at a remote location. However, we soon realized that the visitors would not come in and use the equipment on their own. We had to step out into the flow of traffic and look for someone that seemed interested and invite them into the booth. As soon as we got one 10 or 12 year old sitting in the operator's chair, others would materialize and ask to try the station.

"Having skeds with stations that were in direct connect range of the exhibit was a winning strategy. The ages of the youngsters ranged from nine to 14. If we had tried to teach the kids how to connect to another station, or had not had someone waiting to talk with them as soon as they sat down, their interest could not have been held. Also, using only scheduled contacts allowed the remote stations to be prepared with a list of questions to keep the conversation moving. Some of the youngsters tended to give yes or no answers to questions. We were fortunate to have some very clever operators on the other end of the QSO. It was they who made the show a success.

"We tried to give the museum visitors something tangible to remember their experience. A printer in parallel with the TNC output generated hard copy of the QSO. In addition, someone in the exhibit organization arranged to have QSL certificates printed which we could fill in; the kids collected them from various booths.

"The station operated on 147.495 MHz instead of 145.01 MHz. This kept our third harmonic out of the ATV exhibit, reduced packet collisions and decreased the number of connect requests from curious stations. We found that the messages generated by the TNC in response to connect requests were quite confusing to the visitors.

"There were a number of things which could have been done better. The QSOs generally lasted from five to 15 minutes. This was a combination of low typing speed for the visitors and the need to give them enough exposure to the medium to understand that they were exchanging thoughts with another person. Some visitors started out thinking they were talking to another computer.

"The net result was that only about 50 visitors actually got to talk on packet, although many others were exposed to the idea. There were times the station was idle and other times we had people waiting three deep. During the peak hours, we could have used two or three stations. By the second day, we began adjusting the load somewhat by not fishing for visitors until the QSO in progress was winding down and their was no one waiting to use the station.

"A few of the hams from the other booths also took advantage of the exhibit station. Not all of the hams helping in the packet booth were familiar with the equipment. We should have arranged for the station to be set up at another location before the exhibit. This would have permitted everyone a chance to try thing out.

"We sporadically experienced multiple retries. This was probably from the appalling RF environment at the museum. Changing from an ICOM 2-AT to an ICOM 02-AT seemed to help somewhat. I attribute this to a different front end in the 02-AT. Next time a cavity, 70 cm and/or high-gain antenna pointing at a dedicated digipeater should be considered.

"There were a couple of short gaps in the schedule of remote stations. Better scheduling might have eliminated this problem. The backup portable station in the museum parking lot, which I had counted on to fill the remote station scheduling gaps, proved to be unusable, probably because of receiver front end overload. This should have been tested before the exhibit began.

"The hams manning the booth likened the experience to being at an industry trade show; it was very

tiring. I extend my thanks to these hams who invested their time and effort to help promote packet radio and the amateur service."

Remote stations:

W1CE
N1DDC
WA2EYC
WA1TBY

In the booth:

W1CE	K1HBL
N1DEA	K9HI
N1DMM	W1MJ
N1DQP	WA1NPD
WB1FQK	K1PBL
WA1PFM	

Equipment:

W1CE	W1IRH
WA1GRC	KA1M
K1HBJ	W1MJ

From KA1KCU and the NEPRA PacketEar

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